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Summary

Italian historical buildings require urgent and costly maintenance and restoration works, but neither the local, nor the national public administrators can afford these expenditures. Nevertheless the built cultural heritage represent a unique resource of the territory, as it embodies the local social, historical, and cultural values, generates positive externalities (Musgrave, 1959), and stimulates economic activities mainly related to tourism. Is it possible to quantify how much we care about historical buildings and to measure this value in monetary terms? The aim of this paper is to answer to this question via the hedonimetric approach. Specifically, we try to verify if the proximity to historical villas, districts, palaces, squares, fortresses, religious buildings and archeological site systematically influence the house market equilibrium price in the Veneto region (Italy). The paper is organized as follows: in section two a brief review of the literature is reported, in section three the database used for the hedonimetric estimates is described, in section four the econometric models and the results we had obtained are illustrated, and in section five some final comments are drawn.

Keywords: Cultural Heritage Externalities, Hedonic Housing Price Method

JEL Classification: Z1, D62, Q51

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DO WE CARE ABOUT BUILT CULTURAL HERITAGE? THE EMPIRICAL EVIDENCE BASED ON THE VENETO HOUSE MARKET.

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SOMMARIO

Il patrimonio storico-architettonico italiano richiede continui e costosi interventi per la sua conservazione, ma, contrariamente a quanto si constata in altri paesi, ad esempio gli Stati Uniti, la spesa pubblica destinata a questo scopo è relativamente modesta. Se, ed entro quali limiti, il costo della conservazione debba essere a carico dello stato dipende dal valore che la collettività attribuisce alle esternalità positive generate da tale patrimonio. L'obiettivo di questa ricerca è stato di stimare l'effetto che l'esistenza di edifici di particolare pregio storico-architettonico esercita sul valore immobiliare circostante. A tale scopo è stato condotto uno studio sull'insieme di ville storiche, abitazioni tipiche, borghi, siti archeologici, palazzi civici, piazze, rocche ed edifici religiosi che costituiscono il patrimonio storico-architettonico della regione Veneto. La ricerca è stata condotta utilizzando il metodo dei prezzi edonici ed i valori immobiliari pubblicati dall'osservatorio immobiliare dell'agenzia delle entrate. I risultati ottenuti hanno permesso di evidenziare da un lato che la presenza di borghi, ville storiche e siti archeologici influenza positivamente i valori immobiliari censiti e dall'altro che tale influenza è maggiore quando alla presenza di questi manufatti si associa una maggiore concentrazione di attività di tipo terziario e turistico.

1 LITERATURE REVIEW

According to Throsby (2001) the value of built cultural heritage is made of several components beside the economic one which belong to aesthetical, spiritual, social, historical, and symbolical dimension. They are deeply connected to the environment and the landscape where the building is located, and are extremely difficult to be measured as the market of this kind of buildings, if and when it exists, is not characterized by perfect competition and perfect information.

Recently the economic literature (Sirchia, 2000) has underlined the similarities existing between cultural heritage and environment management issues in terms of diversity conservation, resilience, stock maintenance, and intergeneration equity. Indeed, similarly to the environmental economics principles (Pearce and Turner, 1991), the total economic value (TEV) of built cultural heritage can be imagined as made of four elements: its direct use value, its indirect use value (positive externalities), its option value, and its non-use value.

Different methodologies have been used in order to estimate these value components: some are based on revealed preferences (travel cost, and hedonic price), while others are based on stated preferences (contingent valuation, and conjoint analysis) (Navrud and Ready, 2002). The first ones are based on real choices made in markets which are indirectly affected by the presence of historical buildings, that is the tourism sector and the house market, while the second ones are based on hypothetical choices that are related to the existence or the maintenance level of historical buildings and that are collected via surveys involving samples of the population. The methodologies more frequently applied are contingent valuation and travel costs, and they are generally used to estimate the TEV of a specific site, monument or building. As for the hedonic price technique, the constrains of the hypotheses1 on which this methodology is based has limited its application. Probably its most relevant limit is that it truly captures the value of the cultural good if the benefit falls only, or mainly, on people living in that specific site. Indeed, according to Navrud and Ready (2002) the hedonic price estimates explain only a part of the total value of a cultural good, although the bias decreases as the cultural good prestige has local, rather than national or global, nature. Nevertheless there are several studies using this technique which is by now reliable and deep-rooted. The results reported in the literature demonstrates that the "listed"[2] building condition can influence the house market price from a minimum of - 23% (Asabere *et at.*, 1994) to a

[1] Each investor perfectly knows the price and the features of all the available buildings in the market, has not spatial constrains, faces the same transaction costs as the other investors, and operates in a perfectly competitive market.

[2] building or other structure officially designated as being of special architectural, historical or cultural significance.

maximum of +18% (Coulson *et al.*, 2001); the localization in a listed district can make the price range from +5% to +84% accordingly to the city where the house market is referred to (Leichenko *et al.*, 2001); while the architectural style of the house account for a price variation that goes from - 40% to +36% depending on the type of style considered (Moorhouse and Smith, 1984).

Operatively the hedonic price method is characterized by two phases: (i) the definition of the hedonic price function, where the price of the houses sampled for the study is the dependent variable, and the characteristics of the house, of the neighbourhood, and of the city where it is located are the independent variables, and (ii) the estimation of the parameters included in the function, so that each parameter measures the impact of each characteristic on the house price variable.

2 DATA BASE AND DESCRIPTIVE STATISTICS

The data base used for this study covers the house market of the Veneto region (north-eastern part of Italy). This is one of the most populous areas of Italy, with about 4,5 millions inhabitants and a surface of 18.379 km2. In the region there are 581 municipalities and 7 counties, Belluno is the less populated one, all the others, except for Rovigo, have a population of about 800.000 inhabitants.

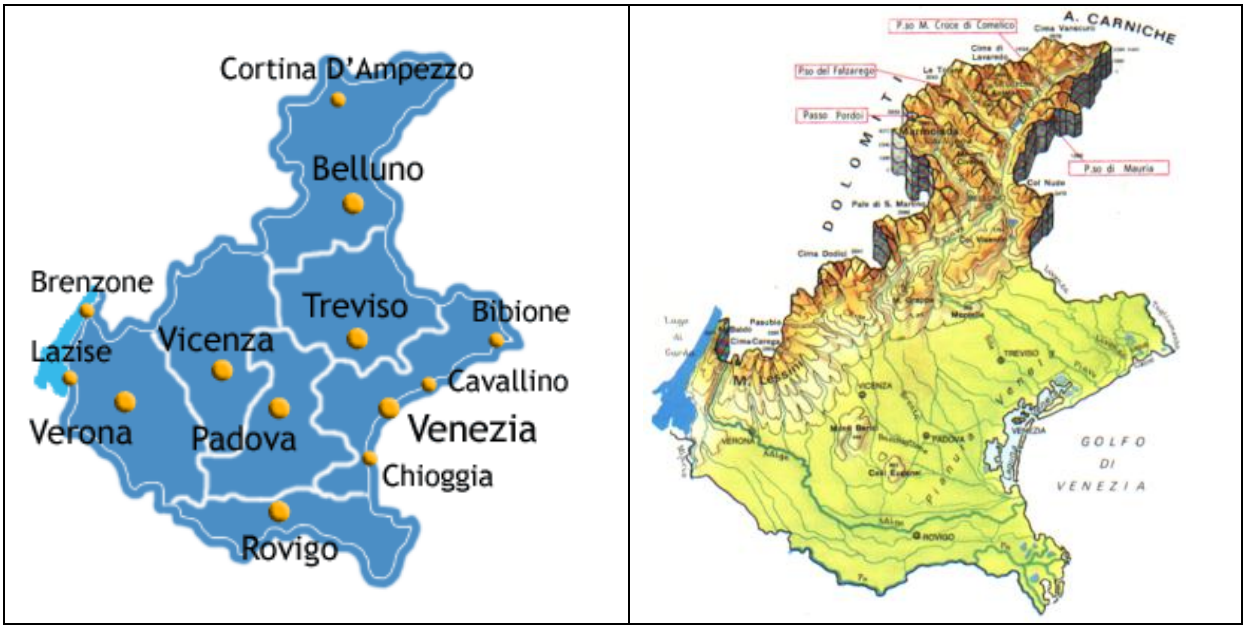

Figure 1 Veneto counties and geographical characteristics

The market prices are those published by the Italian Economy Ministry in the website of the Agenzia del Territorio3, which is the agency managing real estate tax in Italy. Specifically they refer to the maximum and the minimum price (expressed in € per m2) registered in 2001 for a house with standard characteristics localized in the central and in the peripheral area of each municipality in Veneto. Figure 2 represents the spatial distribution of the central maximum values.

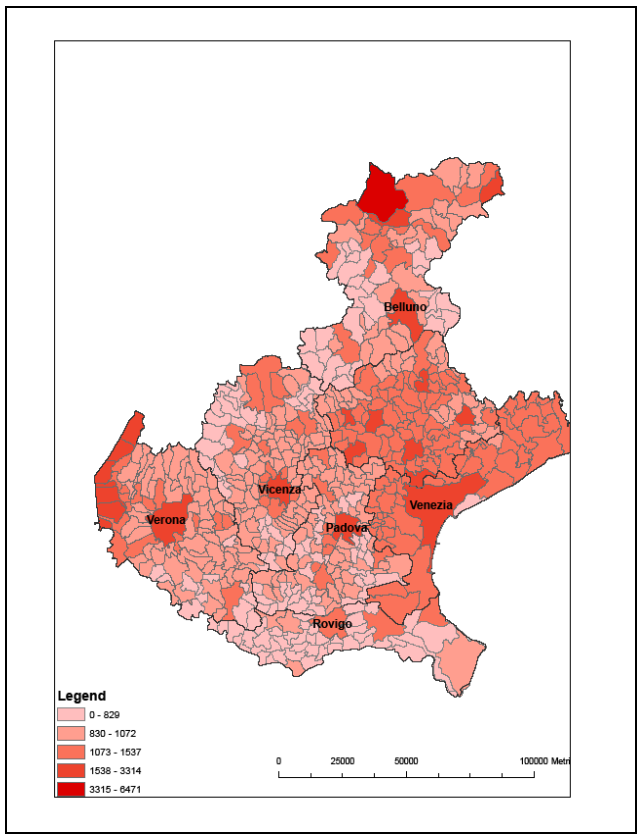

Figure. 2 Central maximum values (€ per m2)

The costal areas (both by the sea and by the Garda lake), the north-eastern part of the region (that is the northern part of the Belluno county), and the area surrounding Asiago, which are typical tourism destinations, present the highest values, while the Polesine, which is the southern part of the Veneto region characterized by agricultural and low value added activities, and the mountain areas not involved in tourism activities have the lowest values.
Three accessibility indicators had been calculated for each municipality, assigning the value 1 if the council has a railway station (*railway accessibility*), is located near the motorway (*motorway accessibility*), or in the vicinity of the regional road network (*regional road accessibility*), and the value 0 otherwise. The accessibility level is uniform and quite high all over the region.

[3] http://agenziaterritorio.it

To describe the environmental quality of each municipality the surface (in per cent terms) characterized by *urban infrastructures*, *woods*, *mountains*, *meadows or pastures*, *arable land*, *orchards or vineyards*, *rivers*, *lakes or coast*, as reported in the Corine 2001 data base[4], had been collected (fig. 3). Moreover two indexes had been calculated: one representing the ratio of the area with meadows or pastures and the area with woods, named *landscape index*, and one representing the landscape variety that is:

Landscape variety index = - Σ_k ((% area with use k) * ln (% area with use k))

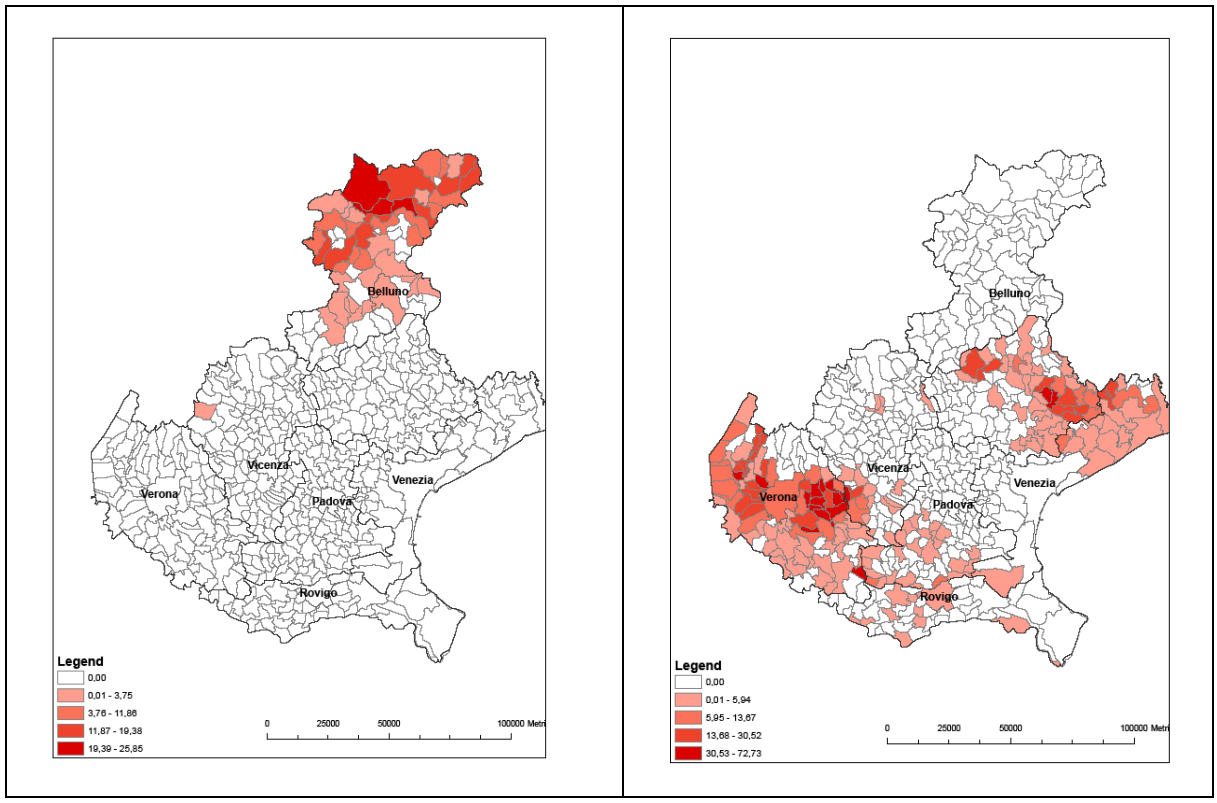

Figure 3 Percentage of municipality area with mountains (a) and with orchards or vineyards (b).

For each municipality two indexes related to the local productive structure had been developed, one, named *tourism activity index*, specified as the ratio of hotels or restaurants and the number of residents (fig. 4), and the other, the *service activity index*, specified as the ratio of the remaining enterprises working in the service sector and the number of residents[5].

[4] http://dataservice.eea.europa.eu/dataservice/
[5] for the original data refer to www.istat.it, 14° Censimento della Popolazione Italiana.

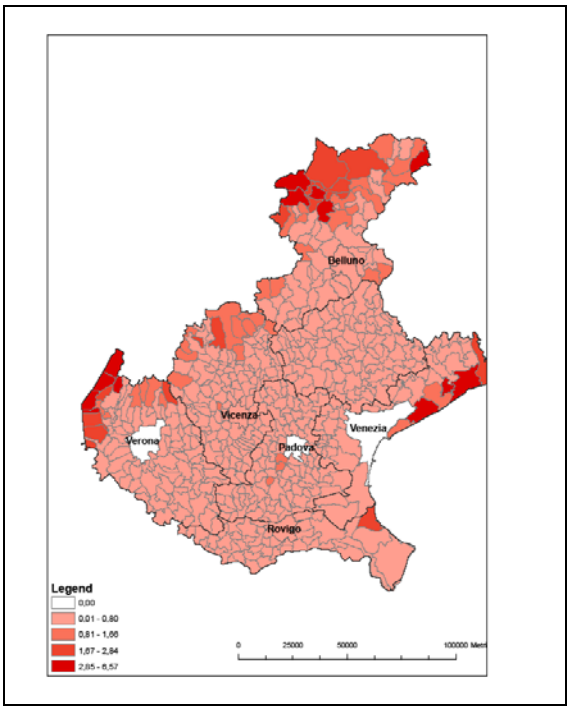

Figure 4 Tourist activity index

In order to describe the characteristics of the buildings localized in each municipality 5 indexes have been specified[6]: the percentage of houses localized in urban or built-up areas, named *central building index*; the percentage of houses built before 1919, named *age building index* (fig. 5/a); the percentage of houses with no dwellers, named *building underutilization index*; m^2 per dweller, *building density index* (fig. 5/b); number of dwellers per km^2, *population density*. The oldest buildings are located in the mountain areas, except for the Asiago district where most of the houses had been destroyed during the World War I, in the Chioggia municipality, in the southern part of the Verona province and in the Polesine area which are characterized by traditional rural activities that have preserved the typical building architecture. The costal and central area of the region, instead, are characterized by recent urbanization phenomenon, partly because of land reclamation activities which had modified the landscape, and partly because of the industrial development that took place during the '60s-'70s. As for the building density, the lower values refer to the central zone of the region, on the other side, the agricultural activities carried out in the southern part of the region typically require bigger houses (comprehensive of their annexes), and the recent urbanization and economic development of the province of Treviso had improved the quality of life guarantying more m^2 per resident.

[6] for the original data refer to www.istat.it, 14° Censimento della Popolazione Italiana.

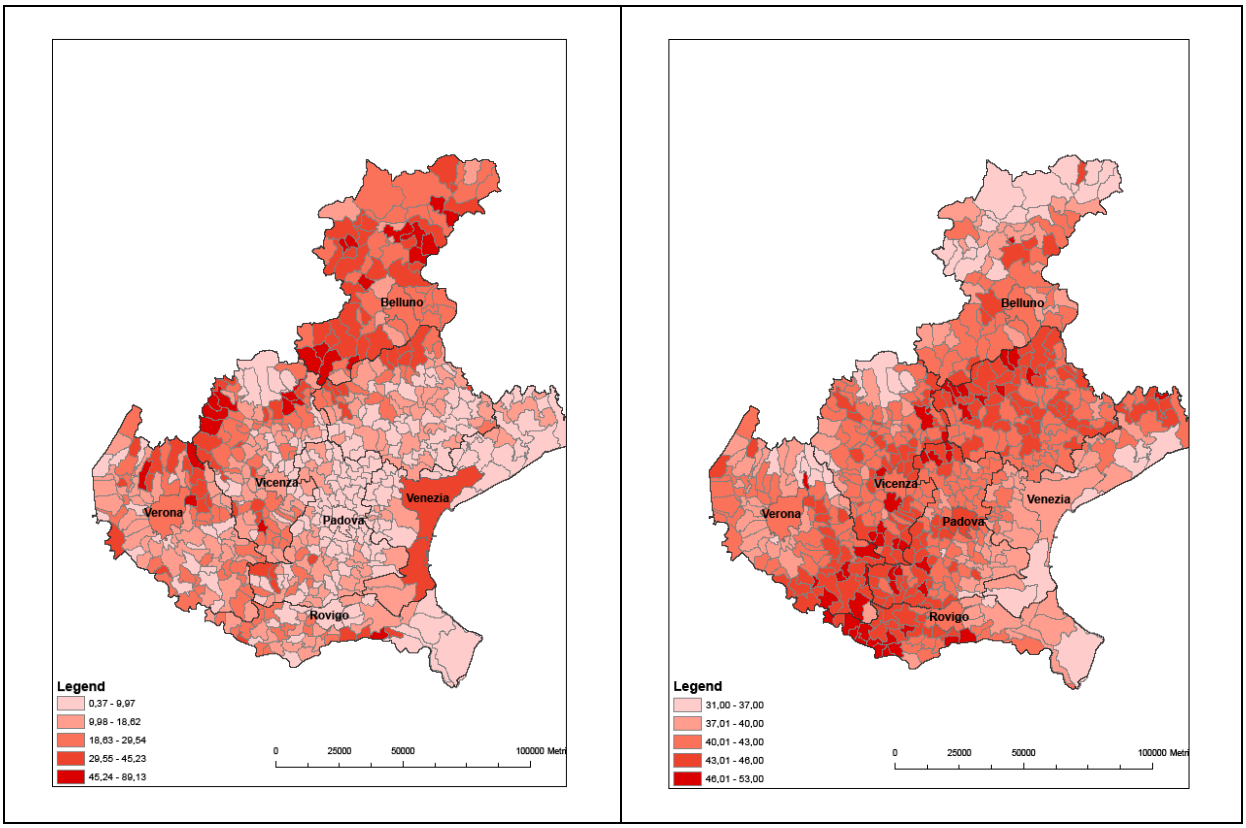

Figure 5 Age building index (a) and Building density index (b)

We described the population living in the Veneto region using the following information: *number of residents in 2001*; *residents variation between 1991 and 2001*; *percentage of families with children*; *employment rate*; *percentage of residents graduated at the high school*; *percentage of self-employed*. The areas surrounding the county municipalities and the costal areas are the most populated ones (fig. 6/a). The central zone of the region is characterized by the highest employment rate as in these areas there is a diffused economic development based on small firms working in the manufacturing sector, conversely the mountain areas are the ones characterized by the lowest employment rates as the economy is far less developed and essentially based on seasonal tourism (fig. 6/b).

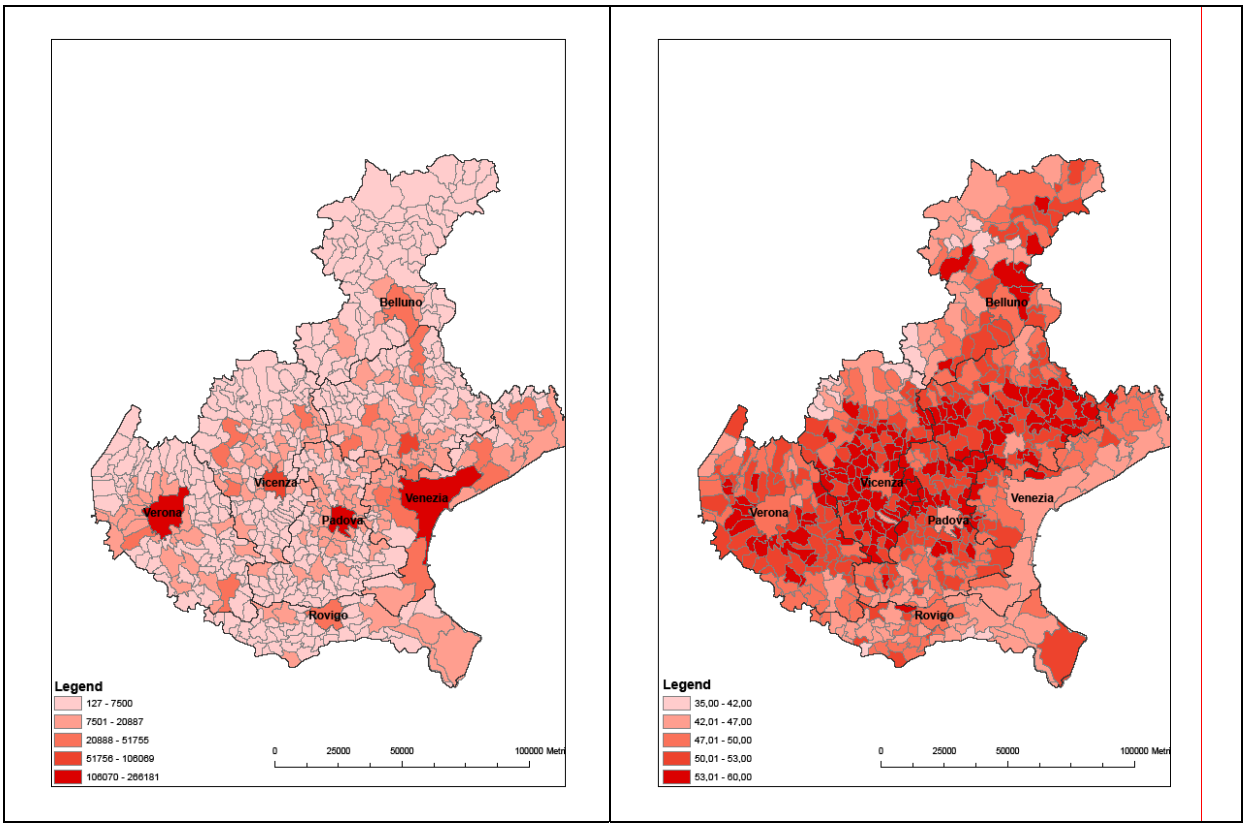

Figure 6 Residents in 2001 (a) and Employment rate (b)

Finally on the bases of the information reported in the *Guida del Touring Club Italiano - Veneto*, the characteristics of the built cultural heritage localized in each municipality had been collected, that is the number of *historical villas* (fig. 7/a), *traditional buildings*, *palaces*, *historical districts* (fig. 7/b), *squares*, *fortresses*, *religious buildings* and *archeological sites*. In particular we counted 429 villas all over the Veneto region, they are localized especially along the Riviera del Brenta (between Venice and Padua), the Terraglio area (between Venice and Treviso), and in the Verona and Vicenza counties, and 52 historical districts. The *length of the municipality description* and of the *district description* (if any) had been included in the database too.

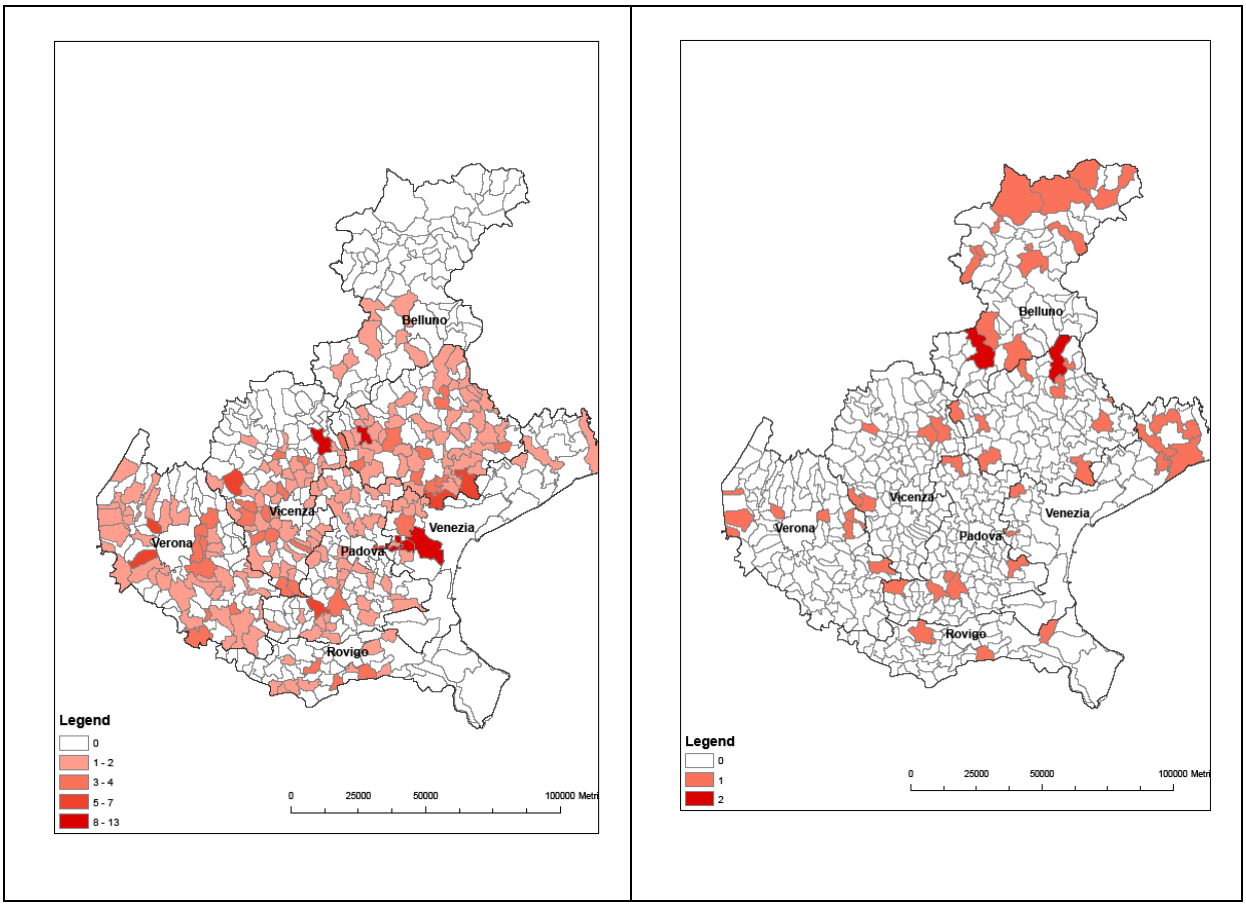

Figure 7 Number of historical villas (a) and of historical districts (b)

Table 1 Descriptive statistics of the variables

	Minimum	Maximum	Mean	Std. Deviation
Min price (€ per m^2) area in central area	383	1750	778.90	182.96
Max price (€ per m^2) area in central area	547	2152	976.59	238.26
Min price (€ per m^2) area in peripheral area	332	1412	624.53	149.96
Max price (€ per m^2) area in peripheral area	448	1631	835.94	178.39
Motorway accessibility	0	1	0.05	0.22
Regional road accessibility	0	1	0.80	0.40
Railway accessibility	0	1	0.26	0.44
Municipality % area with urban infrastructures	0	47.35	8.33	7.33
Municipality % area with woods	0	97.83	19.98	28.89
Municipality % area with meadows or pastures	0	58.99	3.65	8.32
Municipality % area with arable land	0	100.00	62.45	32.84
Municipality % area with orchards or vineyards	0	72.73	2.79	8.24
Municipality % area with high mountains	0	25.76	0.55	2.71
Municipality % area with rivers, lakes or coast	0	71.41	2.16	8.11
Municipality % non classified area	0	13.53	0.09	0.62
Landscape index	0	17363.91	99.32	1170.93
Landscape variety index	0	1.45	0.63	0.33
Tourism activity index	0.60	12.53	3.89	1.37
Service activity index	0.08	6.57	0.56	0.63
Central building index	13.43	100.00	73.80	16.77
Age building index	0.37	89.13	17.79	12.95
Building density index	30.53	52.95	42.43	3.14
Population density index	5.70	1632.00	251.97	217.12
Building underutilization index	0	13.10	4.68	2.36
% of families with children	33.33	69.05	59.62	4.19
Employment rate	35.02	60.44	51.17	3.95
% of graduated at high school	7.34	40.59	23.95	5.07
% of self employed	1.52	16.57	6.54	2.05
Residents in 2001	127	51755	6111.82	6225.34
Residents variation between 1991 and 2001	-2024	2938	306.90	563.77
Municipality listed in the Guida del Touring Club Italiano	0	1	0.83	0.38
Length of Municipality description in the Guida Touring Club Italiano	0	354	11.38	24.28
Historical villas	0	13	0.75	1.51
Traditional buildings	0	23	0.19	1.10
Palaces	0	18	0.42	1.71
Historical districts	0	2	0.09	0.30
Length of district description in the Guida Touring Club Italiano	0	90	0.89	5.60
Squares	0	7	0.17	0.66
Fortresses	0	2	0.09	0.32
Religious buildings	0	18	0.73	1.42
Archeological sites	0	1	0.03	0.16

3 ECONOMETRIC ANALYSIS

In order to measure the effect that the built cultural heritage produces on the house market values in the Veneto region we have estimated the following model:

$$Y_j = \alpha + \sum_{e=1}^{E} \beta_{jm} ES_{jm} + \sum_{v=1}^{V} \lambda_{jv} VS_{jv} + \sum_{i=1}^{I} \delta_{ji} IS_{ji} + \sum_{d=1}^{D} \omega_{jd} D_{jd} + \sum_{b=1}^{B} \sigma_{jp} BCH_{jp} \qquad (1)$$

Where:

Y= max/min price in €/m^2 for a house localized in the central/peripheral area of each municipality;

ES= characteristics of the environment and of the accessibility level, and of the productive structure of each municipality;

VS= landscape variety;

IS= characteristics of the buildings localized in each municipality;

D= characteristics of the population living in each municipality;

BCH= Built Cultural Heritage, that is number of historical villas, traditional buildings, palaces, historical districts, squares, fortresses, religious buildings and archeological sites localized in each municipality.

We estimated four classes of models because we used four different price values for each municipality: the maximum price for a house localized in the central/urbanized area of the municipality; the minimum price for a house localized in the central/urbanized area of the municipality; the maximum price for a house localized in the peripheral area of the municipality; the minimum price for a house localized in the peripheral area of the municipality. In the following section we will report in detail only about the first class of models as the strongest influence of the built cultural heritage are produced over this class of values[7].

All the models had been estimated via the OLS stepwise technique introducing the independent variables accordingly to the blocks previously described (1). The variables not statistically significant accordingly to each estimation step had not been prevented from been introduced in the successive one. The specification and the sequence of the variable blocks are based on the literature review, on the data availability constrains, and on the goal of the study, that is the estimation of the value perceived for the built cultural heritage in Veneto. Indeed, the first three blocks represent the characteristics of the supply side of the market (except for the presence of historical buildings), while the forth block depict the characteristics of the demand side of the market, finally the fifth block details the characteristics of the built cultural heritage. In order to verify if the influence produced by the built cultural heritage is strengthen by the presence of tourism or service activities some interaction effects based on these three variables had been introduced in the last two models. The estimates of all the models are reported in table 2[8].

[7] Refer to the appendix for the results of the other econometric models.

[8] historical villas and religious buildings had not been included in the BCH Tourism model because of collinearity problems, for the same reason historical villas, religious buildings and villas*service activities had not been included in the BCH Tourism/Service sector model.

Table 2 Parameters (and standard error) for the maximum price of a house localized in the central/urban area of a municipality

	Extrinsic Supply	**Variety Supply**	**Intrinsic Supply**	**Demand**	**Length of description**	**BCH**	**BCH and Tourism**	**BCH and Tourism / Service**
Constant	731.410	708.714	754.434	419.916	466.916	416.322	467.164	478.341
	28.880	*30.240*	*32.063*	*153.423*	*153.464*	*151.433*	*150.420*	*150.059*
Tourism activity index	121.569	118.084	128.586	126.636	122.471	125.616	128.275	126.393
	16.876	*16.864*	*15.241*	*14.353*	*14.348*	*14.094*	*13.235*	*13.228*
% area with high mountains	14.738	15.258	14.752	7.652	7.650	7.675	7.744	8.158
	3.310	*3.303*	*3.116*	*2.862*	*2.845*	*2.817*	*2.787*	*2.775*
% area with orchards or vineyards			2.686	1.941	1.889	1.666	1.584	1.604
			0.943	*0.825*	*0.820*	*0.810*	*0.806*	0.805
% area with rivers, lakes, coast	4.028	3.397	4.320	2.001	2.107	2.120		
	1.108	*1.134*	*1.053*	*0.922*	*0.917*	*0.905*		
Service activity index	22.100	21.821	16.303					
	7.935	*7.901*	*7.144*					
Motorway accessibility	111.315	104.585	98.135					
	37.885	*37.824*	*36.487*					
Railway accessibility	45.497	48.788	50.028					
	19.571	*19.533*	*18.792*					
% area with urban infrastructures	8.944	7.730						
	1.443	*1.521*						
% area with woods	-0.863	-1.307						
	0.358	*0.400*						
Landscape variety index		71.509						
		29.488						
Age building index			-2.597	-2.140	-2.518	-2.460	-2.610	-2.563
			0.703	*0.580*	*0.593*	*0.573*	*0.567*	*0.565*
Building density index				-7.322	-8.093	-7.605	-7.968	-7.831
				2.514	*2.515*	*2.473*	*2.455*	*2.451*
Population density index			0.359					
			0.046					
Residents in 2001				0.013	0.011	0.011	0.011	0.011
				0.001	*0.002*	*0.001*	*0.001*	*0.001*
% of graduated at high school				8.542	8.094	7.514	6.902	6.849
				1.846	*1.842*	*1.819*	*1.813*	*1.811*
% of self employed				19.101	18.848	17.248	17.005	16.709
				4.518	*4.492*	*4.439*	*4.417*	*4.416*
Employment rate				8.068	8.246	9.074	8.734	8.467
				1.990	*1.980*	*1.973*	*1.961*	*1.947*
Length of municipality description					0.950			
					0.344			
Historical districts						86.860	76.438	
						23.748	*23.807*	
Historical villas						13.155		
						4.796		
Archeological sites						88.416	86.863	81.516
						41.618	*41.338*	*41.306*
Villas and tourism							41.610	41.035
							9.732	*9.731*
Districts and service sector								16.671
								4.855
R2adj	**0.359**	**0.364**	**0.408**	**0.550**	**0.555**	**0.569**	**0.573**	**0.574**

The R^2adj relative to the first model shows that the characteristics of the context where the houses are localized influence their market price quite significantly, as the model is able to explain more that 35% of the data variability. The most important characteristics (in terms of standardized coefficients) influencing the market price values are the concentration of tourism or service activities (possibly because they are high value added activities that are typically localized in nice locations and that generally invest part of their profits to ameliorate the urban context as a mean to attract new customers), followed by the presence of highly infrastructured areas (because they tend to offer more and qualitatively better public services), and the closeness to high mountain or costal areas (because they generally present better environment and landscapes), while the presence of woods tends to lower the price market (probably because it reduces the landscape view). In line with the empirical results reported in the literature and with our *a-priori*, the accessibility level, relatively to both the motorway and the rail station, significantly positively influences the market price, although this influence tends to decrease as the models are specified with other variables, probably because the accessibility level is quite high and uniformly distributed all over the region.

The econometric estimates of the second model confirm the previous results and demonstrate that also the landscape variety is a relevant factor influencing the house market price, as the R^2adj increases to 0.364.

If the variables describing the characteristics of the settlements and the houses are introduced in the model (the third one) the R^2adj increases up to 0.408. The most important ones are the population density index and the age building index associated, respectively, with a positive and a negative effect on the market price. They are both in line with our *a-priori* as the first one is possibly accompanied by pressures from the demand side of the market, while the second one may characterize built environment with low quality (at least in terms of technical features, for example elevators, frames, …) or high maintenance cost.

Introducing the demand side variables the explanatory capacity of the model increase substantially, raising up to 0,55, and although the tourism index maintains its predominant importance determining the market price, the number of residents is as important as the tourism one (probably because it is indicative of higher pressured of the demand side over the market price), followed by the percentage of graduated residents, the percentage of self employed, and the employment rate (which are all indicative, instead, of higher income level and so of higher willingness to pay for a house). It is worth noting that as we introduce in the model the demand side characteristics many supply side features that previously appeared to be statistically significant, are not anymore (service activity index, accessibility indexes, % urbanized or woody areas, landscape variety).

In order to get a general idea of the importance that the build cultural heritage produces over the house market price we specified a fifth model including the number of rows describing each municipality as reported in the *Guida del Touring Club Italiano*, and it is interesting to

notice that its coefficient is positive and statistically significant, ranking before the supply characteristics in terms of standardized coefficients (except for the tourism index).
In the sixth model the build cultural heritage is depicted with nine variables making the R^2adj rise to 0,569 and showing that the historical villas, the historical districts, and the archeological sites do positively and statistically significantly influence the house market price. Moreover, introducing the historical villas and districts variables as interaction terms with the tourism and service sector indexes the explanatory capacity of the model gets even higher, R^2adj equal to 0,574 demonstrating that the positive effects produced by the build cultural heritage over the house market price is strengthen if there is a higher concentration of these kind of activities.

As our goal was to quantify the positive externalities produced by the build cultural heritage, we used our results (based both on the maximum and the minimum price per m^2 relative to the municipality central areas) to estimate in monetary terms the value that the people living in the Veneto region perceive due to these resources. Specifically, on the bases of the building density index (m^2 per dweller) and on the number of residents living in the central area of each municipality, we estimated the m^2 characterizing each municipal central area, and we multiplied this value by the number of villas localized in each municipality and by the estimated premium for the maximum price, €12,8, and for the minimum price, €8,43. The positive externalities we calculated for the historical villas analyzed in this study are depicted in table 3. Our results show that on average the positive externalities produced by each villa are within the range 3,3 – 5,1 millions of euros, and that if the villa is located in a tourist context (that is a municipality with a high tourist activity index) the value of its positive externalities are even higher ranging from 3,5 to 7 million euros. The effect produced by all the villas we have included in our analysis is in the range 1,4 – 2,2 billions of euros, but if we consider the synergic effect produced by the tourism too the total positive externalities value is within a range of 1,5 – 3 billions of euros.
It should be noticed that our estimates are probably smaller than the real value as (1) we only analyzed the influence produced by 429 villas, but there are many more villas in the Veneto region we did not take into account for; (2) we estimated only the effect that these villas produce on the market price of the houses localized in the central urbanized areas of the municipalities; (3) the hedonic price methodology allows to measure only the indirect use value, but it is not able to capture option value, and the non-use values, (4) we constrained our results to be the same all over the region, while it is possible to imagine that they differ accordingly to some local spatial scale being even higher in some sub-regional areas.

Table 3 Positive externalities generated by historical villas in the Veneto region

Independent variable	Dependent variable €/m²	Value	
		Per villa (mil €)	Total (bil €)
Historical Villas	Min	3,3	1,4
	Max	5,1	2,2
Historical Villas and Tourism	Min	3,5	1,5
	Max	7,0	3,0

4 CONCLUSIONS

We titled this paper with a question, that is if and how much we care about build cultural heritage. In order to answer to this question we studied the house market of the Veneto region. Specifically we collected information about the characteristics of the supply and demand side of the market at the municipality level, and we econometrically analyzed these data via the hedonic price methodology. We estimated several linear models expressing the maximum /minimum price per m^2 of the houses localized in the central areas of each municipality as a function of the features of the environmental and productive context where they are located, of the technical qualities of the buildings on average characterizing each municipality, of the population living in each municipality, and of the presence and typology of built cultural heritage. On the basis of the results that we have obtained we can conclude that historical buildings, and more specifically, historical villas, do produce some external benefits and that they are quantifiable in monetary terms within a range between 3,3 and 7 millions euros each. This is almost certainly a biased value of the total economic value of a historical villa, as it does not take into account the option and non-use value, but it is a statistically significant starting point for feature, more precise research on the matter, for instance analyzing if the models we have estimated at the regional level are valid also at the local level or estimating the spatial dimension of the influence produced by the built cultural heritage on the house market. It should be noticed, finally, that the estimated values provide a useful reference point for conservation policies design and financing. Indeed, it is easy to demonstrate that the amount of public resources actually allocated for conservation activities is much smaller than the value of the positive externalities produced by these kind of buildings.

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Table 4 Parameters (and standard error) for the minimum price of a house localized in the central/urban area of a municipality

	Extrinsic Supply	Variety Supply	Intrinsic Supply	Demand	Length of municipality description	BCH	BCH and Tourism / Service
Constant	594.168	577.307	583.435	100.436	100.436	119.750	124.664
	23.229	*24.302*	*27.084*	*151.370*	*151.370*	*151.107*	*150.425*
Tourism activity index	86.201	80.730	81.546	86.727	86.727	87.097	81.650
	12.519	*12.702*	*11.861*	*11.326*	*11.326*	*11.264*	*11.314*
% area with high mountains	13.667	14.238	12.690	9.267	9.267	9.177	9.917
	2.646	*2.648*	*2.443*	*2.351*	*2.351*	*2.343*	*2.344*
% non classified area	-27.738	-27.720	-24.830				
	10.654	*10.614*	*10.119*				
% area with urban infrastructures	5.884	5.063	-6.255				
	1.156	*1.207*	*2.041*				
Service activity index	24.793	24.619	24.579				
	6.412	*6.388*	*6.003*				
Railway accessibility			31.065				
			14.470				
% area with woods	-0.862	-1.155					
	0.281	*0.309*					
Motorway accessibility	64.304	60.101					
	29.461	*29.411*					
Landscape variety index		52.436	66.231				
		23.055	*20.758*				
Age building index			-2.864	-1.799	-1.799	-1.977	-1.954
			0.570	*0.492*	*0.492*	*0.494*	*0.490*
Building density index				-5.324	-5.324	-5.708	-5.583
				2.088	*2.088*	*2.080*	*2.070*
Population density index			0.408				
			0.064				
Residents in 2001				0.008	0.008	0.007	0.007
				0.001	*0.001*	*0.001*	*0.001*
% of self employed				16.560	16.560	15.699	15.256
				3.726	*3.726*	*3.714*	*3.709*
% of graduated at high school				6.672	6.672	6.199	5.987
				1.538	*1.538*	*1.536*	*1.535*
Employment rate				6.498	6.498	6.796	6.553
				1.909	*1.909*	*1.912*	*1.899*
% of families with children				3.918	3.918	3.886	4.084
				1.913	*1.913*	*1.901*	*1.895*
Historical districts						38.939	
						19.758	
Historical villas						8.357	
						3.987	
Historical villas*tourist activity index							20.518
							8.098
Historical districts*service activity index							8.572
							4.054
R2adj	**0.297**	**0.302**	**0.366**	**0.486**	**0.486**	**0.492**	**0.496**

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